



## Booze and butts: A content analysis of the presence of alcohol in tobacco industry lifestyle magazines



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### ABSTRACT

**Background:** Advertising influences people's health behaviors. Tobacco companies have linked tobacco and alcohol in their marketing activities. We examined how depictions of alcohol were placed in lifestyle magazines produced by tobacco companies, and if these references differed depending on the magazine's orientation, if it was towards men, women, or if it was unisex.

**Methods:** Content analysis of 6 different tobacco industry lifestyle magazines (73 issues), including 73 magazine covers, 1558 articles, 444 tobacco ads, and 695 non-tobacco ads.

**Results:** 14 of 73 (19%) magazine covers featured alcohol; 581 of 1558 (37%) magazine articles mentioned alcohol; 119 of 444 (27%) tobacco ads showed alcohol images; and 57 of 695 (8%) non-tobacco ads portrayed alcohol. Male-oriented magazines (*Unlimited*, *CML*, and *Real Edge*) contained the most alcohol references, and the references were mainly beer, mixed drinks, and liquor or spirits. Female-oriented magazines (*All Woman* and *Flair*) contained the fewest alcohol references, and wine and mixed drinks were the major types of alcoholic beverage portrayed. For the unisex magazine (*P.S.*), the frequency of alcohol references fell between the male- and female-oriented magazines, and the magazine most frequently mentioned mixed drinks.

**Conclusions:** Frequent depictions of smoking and drinking in tobacco industry lifestyle magazines might have reinforced norms about paired use of tobacco and alcohol among young adults. The pairing of tobacco and alcohol may particularly target young men. Anti-tobacco interventions need to address the co-use of tobacco and alcohol, change the social acceptability of smoking in social settings, and tailor anti-tobacco messaging by gender.

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### 1. Introduction

Tobacco use is the leading cause of preventable disease and death in the US, accounting for more than 480,000 premature deaths each year (U.S. Department of Health and Human Services, 2014). Every year, 87% of lung cancer deaths, 61% of pulmonary disease deaths, and 32% of deaths from coronary heart disease are attributable to smoking and secondhand smoke exposure (U.S. Department of Health and Human Services, 2014). In 2013, 17.8% of US adults reported smoking within the past 30 days (Jamal et al., 2014). Alcohol use is the third leading cause of preventable death, resulting in nearly 88,000 deaths annually (Centers for Disease Control and Prevention, 2014a). In 2013, 7.0% of US adults had alcohol use disorders (National Institute on Alcohol Abuse and Alcoholism, 2015). Excessive alcohol use increases the risk

of heart disease, stroke, hypertension, and cancer of the breast, mouth, throat, esophagus, liver, and colon (Centers for Disease Control and Prevention, 2014b). The co-use of tobacco and alcohol is even more detrimental to health, and leads to lung disease, heart disease, and cancer of the mouth, throat, and esophagus (American Cancer Society, 2014; Grucza & Bierut, 2006; National Institute on Alcohol Abuse and Alcoholism, 1998; Pelucchi, Gallus, Garavello, Bosetti, & La Vecchia, 2006).

The co-use of tobacco and alcohol is common, especially among young adults. In a study of college students in the US, 98% of current (past 30-day) smokers reported alcohol consumption in the past year (Weitzman & Chen, 2005). Smoking episodes often involve alcohol use (McKee, Hinson, Rounsaville, & Petrelli, 2004). In a study of young adult bar patrons in San Diego, California, 95% reported smoking while drinking alcohol at a bar or club (Jiang & Ling, 2013). Young adults report that they enjoy smoking while drinking alcohol (Gilpin, White, & Pierce, 2005), and view smoking and drinking as highly paired behaviors, especially in social contexts (Acosta et al., 2008; Budd & Preston, 2001; Gilpin et al., 2005; Hoek, Maubach, Stevenson, Gendall, & Edwards, 2013; McKee et al., 2004; Nichter, Nichter, Carkoglu, Lloyd-

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Richardson, & Tobacco Etiology Research Network (TERN), 2010; Nichter et al., 2006; Stromberg, Nichter, & Nichter, 2007). The paired use of tobacco and alcohol has become the norm, and smoking at bars is regarded as “sociable” by young adults (Hoek et al., 2013). Tobacco companies have researched young adults' drinking patterns and their preferences for alcohol types and brands, and designed marketing strategies to link tobacco with alcohol (Jiang & Ling, 2011). These marketing activities both capitalize on and reinforce social norms about the paired use of tobacco and alcohol.

Advertising influences people's health behaviors. Exposure to tobacco advertising causes smoking initiation and continuation among adolescents and young adults (U.S. Department of Health and Human Services, 2012), and is related to cigarette brand selection (Pucci & Siegel, 1999; While, Kelly, Huang, & Charlton, 1996). Similarly, exposure to alcohol advertising is associated with intention to drink alcohol (Collins, Ellickson, McCaffrey, & Hambarsoomians, 2007; Fleming, Thorson, & Atkin, 2004; Pasch, Komro, Perry, Hearst, & Farbakhs, 2007), increased alcohol consumption (Austin, Chen, & Grube, 2006; Casswell & Zhang, 1998; Collins et al., 2007; Collins, Schell, Ellickson, & McCafferty, 2003; Connolly, Casswell, Zhang, & Silva, 1994; Ellickson, Collins, Hambarsoomians, & McCaffrey, 2005; Fleming et al., 2004; Grube & Waiters, 2005; Pasch et al., 2007; Snyder, Milici, Slater, Sun, & Strizhakova, 2006; Stacy, Zogg, Unger, & Dent, 2004; Wyllie, Zhang, & Casswell, 1998a,b), and brand selection (Chen, Grube, Bersamin, Waiters, & Keefe, 2005). The images and messaging that link tobacco with alcohol, such as some seen in tobacco advertising, are framed to be consistent with social norms about smoking and drinking, and may reinforce the message that co-use—even if it is “I only smoke when I am at a bar and I am drinking”—is a normal part of young adult social activities. It also builds upon other tobacco marketing strategies to influence public perceptions of smoking as a legitimate normative behavior with positive social benefits (Landman, Cortese, & Glantz, 2008).

Research on advertising that portrays both tobacco and alcohol is limited. A previous content analysis of the general magazines popular among young adults found that tobacco advertisements often contained alcohol images or text references to alcohol (Belstock, Connolly, Carpenter, & Tucker, 2008). However, a unique and interesting source of tobacco advertising is lifestyle magazines created by tobacco companies and distributed to smokers via direct mail. The tobacco industry's lifestyle magazines were produced primarily in the 1990s–2000s to enhance connections with smokers and to communicate with young adults (Cortese, Lewis, & Ling, 2009). Many of these magazines were designed to reinforce specific cigarette brand images (e.g., CML magazine designed for the Camel cigarette brand) by featuring young adults' lifestyles and values throughout the magazines, including the articles, images, and ads (Cortese et al., 2009; Cortese & Ling, 2011). In these tobacco industry lifestyle magazines, tobacco companies have editorial control over the content in ways that allow them to seamlessly integrate the marketing messages into the magazine covers, article content, and ads to construct an entire magazine to communicate the advertising messages. This is unlike mainstream magazines (not produced by tobacco companies) where tobacco companies cannot link magazine content with their tobacco marketing campaigns because editorial control is maintained by the publishing companies. Thus the lifestyle magazines represent a unique source to assess how tobacco companies used alcohol to build and reinforce the cigarette brand identity. Today, for unknown reasons, tobacco companies no longer produce most of the lifestyle magazines (Cortese et al., 2009). However these historical texts provide a unique perspective into how, through the creation of lifestyle media, tobacco companies might reinforce the links between tobacco and alcohol use. There is some evidence that these marketing tactics have been transferred into other channels such as tobacco brand websites. A better understanding of these marketing tactics may help inform the development of targeted interventions to address paired use of tobacco and alcohol.

We conducted a content analysis of a collection of the tobacco industry's lifestyle magazines to (1) describe the frequency of alcohol references in different parts of the magazines (i.e., magazine cover, article, tobacco ads, and non-tobacco ads), (2) describe the types of alcohol featured in each part of the magazines, and (3) compare the difference in alcohol references by the targeted gender orientation of the magazines. The frequency of alcohol references (both images and texts) reflects the intensity of using alcohol to promote cigarettes, and may indicate the importance of this marketing tactic to tobacco companies, and if there is a difference by gender. To examine targeting by gender further, the types of alcoholic beverages in the different references may tell if and how tobacco companies might target messages to men or women by using gender-specific preferences for alcohol.

## 2. Methods

We analyzed all lifestyle magazines contained in the Trinkets and Trash archive ([trinketsandtrash.org](http://trinketsandtrash.org)), a surveillance system and archive that monitors, collects, and documents historic and current tobacco products and promotional materials (e.g., magazines, advertisements, direct mails, e-mails, sweepstakes, coupon promotions and brand websites). Trinkets and Trash utilizes monitors who have signed up to receive direct mail promotions from various tobacco brands, and these promotional items included controlled circulation magazines produced by tobacco companies. This collection represents a reasonably comprehensive sample and the best available collection of limited edition magazines produced by tobacco companies. The collection included 6 different magazines: *Unlimited*, *All Woman*, *CML*, *Pleasure Scene (P.S.)*, *Real Edge*, and *Flair*. There were a total of 73 different issues of the six magazines available. Table 1 presents more detailed information about the magazines included in this analysis (Philip Morris, 1996, 2003, 2004; R. J. Reynolds, 1999). We analyzed the full content of all 73 issues of the magazines, which included a total of 73 magazine covers, 1558 articles, 444 tobacco ads, and 695 non-tobacco ads.

We followed standard content analysis techniques well-established in the literature (Jordan, Kunkel, Manganello, & Fishbein, 2009; Macnamara, 2003; Neuendorf, 2001; Riffe, Lacy, & Fico, 2005). These research techniques have been used to study tobacco and alcohol advertisements in magazines (Balbach, Gasior, & Barbeau, 2003; Belstock et al., 2008; Stubblefield & Singh, 2004). We developed a set of 4 different coding instruments to fit 4 different categories of magazine content (i.e., magazine covers, articles, tobacco ads, and non-tobacco ads). Every coding instrument included sections to code alcohol references and the types of alcohol present. Alcohol references included both the images of alcohol and mentions of alcohol in the text (e.g., either the word “alcohol” or the type/brand of the alcohol). Table 2 presents the definitions of the different types of alcohol (i.e., beer, wine, mixed drink, liquor and spirits, and unknown type). The coding instruments were refined and tested iteratively until consistent definitions were generated to ensure the exhaustiveness and mutual exclusivity of the coding variables.

A comprehensive coding procedure manual was developed for each of the 4 coding instruments. Definitions for coding items were written and revised during an extensive coder training. Five coders were trained and they were blinded to the study objectives. All coders completed test sets of identical materials which were checked for consistency, and then all coders participated in group discussions of the test set. Differences in coding results were examined and discussed, code books were revised, and another test set was completed iteratively until all coders were reliable. Definitions for coding items were modified as necessary to clarify terminology, or to narrow or broaden inclusion criteria to enhance reliability until acceptable reliability was achieved.

We measured intercoder reliability formally using Krippendorff's Alpha (0.704) and raw percentages of agreement (greater than 80%), both of which are acceptable reliability levels for content analyses

**Table 1**  
Summary of tobacco industry lifestyle magazines analyzed.

	Unlimited	All Woman	CML	P.S.	Real Edge	Flair
Tobacco company	Philip Morris	Philip Morris	RJ Reynolds	Lorillard	Brown & Williamson	Brown & Williamson
Cigarette brand(s)	Marlboro	Virginia Slims	Camel	Newport	Lucky Strike, Kool	Misty, Capri
Gender-orientation	Male	Female	Male	Unisex	Male	Female
Number of issues analyzed	25	3	13	16	10	6
Publisher	Hachette Filipacchi Magazines	Hachette Filipacchi Magazines	Wink Media	Global Direct (later Positive Energy Media)	Petersen Publishing Company (later Hearst Corporation)	Hearst Corporation
Issues analyzed	Sep 1996–Dec 2005	Dec 2003–Dec 2004	Dec 1998–Dec 2003	Jun 2002–Jun 2007	Jun 1999–Mar 2003	Jun 1999–Mar 2001

with multiple coders using both nominal and ordinal measures (Lombard, Snyder-Duch, & Bracken, 2002; Riffe et al., 2005).

Once consistency was achieved and coding manuals were finalized, within each issue of each magazine, and for each cover, article, tobacco ad, and non-tobacco ad, the coders recorded the number of times (frequency) that they identified an alcohol reference (e.g., images and texts). For each identified alcohol reference, the coders recorded the type of alcohol in the reference (i.e., beer, wine, mixed drink, liquor and spirits, and unknown type). We conducted Chi-square tests to compare the frequency of alcohol references by the magazine's gender orientation (i.e., male-oriented vs. female-oriented vs. unisex) for each item category (i.e., magazine cover, article, tobacco ads, and non-tobacco ads).

### 3. Results

#### 3.1. Frequency of alcohol references

One-fifth (14 of 73) of the magazines showed alcohol references on their covers, with most alcohol references found in *P.S.* (50%, unisex), followed by *CML* (39%, male-oriented) and *Flair* (17%, female-oriented) (Table 3). Alcohol images frequently depicted people smoking and drinking in social contexts. For example, Fig. 1 shows the cover of *CML* which features three young adults in a social setting drinking alcohol and smoking cigarettes.

Over one-third (581 of 1558) of magazine articles mentioned alcohol in images or text, with the highest proportion of alcohol references found in male-oriented magazines ( $X^2 = 78.67, p < .001$ , data not shown in tables). On average, 45% (457 of 1009) of articles in male-oriented magazines mentioned alcohol, compared to 24% (71 of 301) of unisex magazines and 21% (53 of 248) of female-oriented magazines. Among male-oriented magazines, *CML* (56%) had the most alcohol references, followed by *Unlimited* (47%) and *Real Edge* (35%).

**Table 2**  
Definitions for alcohol references.

Type of alcohol	Definition
Beer	An amber-colored beverage that is typically drunk from a mug or the bottle; if you see an amber-colored beverage in a mug or a long-necked bottle, code for beer.
Wine	Usually straw-colored ("white wine") to garnet ("red wine") and is found in a stemmed glass that is bulbous; champagne is often straw-colored ("brut," "blanc-de-blanc," "blanc-de-noir") or rose-colored ("Rosé"). It is typically served in a "flute," which is a stemmed cylindrical cup. For this study, sparkling wine is the same as champagne.
Mixed drinks	If you notice a beverage that includes thin stirrers, fruit, olives, or umbrellas, this is a clue that the beverage is a mixed drink. NOTE: Mixed drinks are mostly served in tumblers, colada, or martini glasses; if you see these types of glasses, it should be a primary clue that the drink is a mixed drink. Mixed drinks are alcohol mixed with fruit juices (includes Wine Coolers). These drinks are typically served with fruit or fruit liquor, but may also exclude fruit drinks. Mixed drinks are often served over ice, or blended in a blender, or shaken. NOTE: If it is a party, tropical, bar, or other celebratory scene, you should consider the image to be of a mixed drink. In these scenes, you should assume that any clear beverage in a glass with ice is a mixed drink; water is almost always served in a disposable (e.g., "Dixie") cup. Mixed drinks include, but are not limited to: Bloody Mary's, dirty martinis, apple-tinis, cosmos or cosmopolitans, gin and tonic, piña coladas, screwdrivers, vodka and cranberry, Cape Cods, sea breezes, sex on the beach, Long Island iced teas, buttery nipples, rum and coke, vodka red bull, hurricanes, cubo libres, mojitos, margaritas, whiskey sour, and other mixed liquor drinks.
Liquor/spirits	Alcoholic beverages that are distilled. In this study, a liquor or spirit is served in a shot glass and can have no other ingredient in it, including ice. NOTE: If you note a shot glass, code for liquor/spirits.

Between 3–14 tobacco ads were found in each magazine issue (data not shown). Tobacco was heavily advertised in *CML* and *P.S.*, with an average of 14 tobacco ads in each issue of *CML* and 7 tobacco ads in each issue of *P.S.*; *Unlimited* had the fewest tobacco ads with an average of 3 tobacco ads per issue. A total of 119 of 444 (26.8%) tobacco ads showed alcohol images, and these were mainly found in male-oriented magazines ( $X^2 = 18.49, p < .001$ , data not shown). Very few tobacco ads in the female-oriented magazines featured alcohol. An average of 33% (97 of 292) of tobacco ads in male-oriented magazines contained alcohol images, compared to 16% (17 of 104) in the unisex magazine *P.S.* and 10% (5 of 48) in female-oriented magazines. *CML* (42%) had the highest proportion of tobacco ads featuring alcohol, followed by *Real Edge* (32%). Fig. 2 shows examples of tobacco ads featuring alcohol.

The magazines also contained non-tobacco ads, with an average of 21 non-tobacco ads found in each issue of *Unlimited*, and 8 in each issue of *Real Edge* and *Flair* (data not shown). One notable exception was *CML* magazine, where virtually all ads in *CML* were for Camel cigarettes or Camel-branded merchandise, including smoking accessories (e.g., lighters and ashtrays) and alcohol paraphernalia. Unlike the tobacco ads, very few non-tobacco ads showed alcohol images. Only 57 of 695 (8.2%) of non-tobacco ads showed alcohol images, and 47 of these ads were advertisements for alcohol. *Real Edge* (10%) ranked the highest in proportion of non-tobacco ads featuring alcohol, followed by *Flair* (9%) and *Unlimited* (8%). Among non-tobacco ads, no difference was observed in frequency of alcohol references by magazines' gender orientation ( $X^2 = 0.37, p = .829$ , data not shown).

In general, male-oriented magazines contained the most alcohol references, followed by the unisex magazine *P.S.* The female-oriented magazines, particularly *All Woman*, contained the fewest alcohol references.

#### 3.2. Type of alcohol present

Among the 14 magazine covers that exhibited alcohol, the main type depicted was mixed drinks ( $n = 11$ , Table 4), including 4 of 5 covers in

**Table 3**  
Frequency and percentage of alcohol references by location in tobacco industry's lifestyle magazines.

	Unlimited (PM, men's magazine)	All Woman (PM, women's magazine)	CML (RJR, men's magazine)	P.S. (Lorillard, unisex magazine)	Real Edge (B&W, men's magazine)	Flair (B&W, women's magazine)	Total
Number of issues	25	3	13	16	10	6	73
Cover							
No alcohol	25 (100%)	3 (100%)	8 (61.5%)	8 (50.0%)	10 (100%)	5 (83.3%)	59 (80.8%)
With alcohol	0 (0%)	0 (0%)	5 (38.5%)	8 (50.0%)	0 (0%)	1 (16.7%)	14 (19.2%)
Article							
No alcohol	347 (52.9%)	88 (87.1%)	54 (44.3%)	230 (76.4%)	151 (65.4%)	107 (72.8%)	977 (62.7%)
With alcohol	309 (47.1%)	13 (12.9%)	68 (55.7%)	71 (23.6%)	80 (34.6%)	40 (27.2%)	581 (37.3%)
Tobacco ads							
No alcohol	61 (89.7%)	13 (100%)	102 (57.6%)	87 (83.7%)	32 (68.1%)	30 (85.7%)	325 (73.2%)
With alcohol	7 (10.3%)	0 (0%)	75 (42.4%)	17 (16.3%)	15 (31.9%)	5 (14.3%)	119 (26.8%)
Non-tobacco ads							
No alcohol	484 (91.7%)	10 (100%)	5 (100%)	24 (96.0%)	74 (90.2%)	41 (91.1%)	638 (91.7%)
With alcohol	44 (8.3%)	0 (0%)	0 (0%)	1 (4.0%)	8 (9.8%)	4 (8.9%)	57 (8.3%)

CML, 6 of 8 covers in P.S., and the single Flair cover that featured alcohol. Among the 581 articles that mentioned alcohol, 310 (53%) articles mentioned beer, 202 (35%) mentioned mixed drinks, 173 (30%) mentioned liquor or spirits, and 124 (21%) mentioned wine. Mixed drinks and beer were most frequently mentioned in articles in each of the 6 magazines. Male-oriented magazines such as *Unlimited* and *Real Edge* generally had the highest proportion of articles referring to beer, although *CML* featured mixed drinks more frequently than beer. Very few articles mentioned wine, although wine was depicted more frequently in female-oriented magazines: Among the 13 articles with alcohol references in *All Woman*, 6 (46%) featured wine; in *Flair*, 45% (18 of 40) alcohol-referenced articles were related to wine. *P.S.*, the unisex magazine, included mixed drinks more frequently than other types of alcohol.

Among the tobacco ads featuring alcohol, mixed drinks appeared most frequently. Over one-third (33–65%) of tobacco ads featuring alcohol exhibited the images of mixed drinks. Male-oriented and unisex magazines contained the majority of tobacco ads featuring alcohol, and mixed drinks were generally depicted more than any other type of alcohol. Among the 57 non-tobacco ads that depicted alcohol (mainly found in *Unlimited* and *Real Edge*), liquor and spirits were most frequently depicted alcohol type.

Male-oriented magazines like *CML*, *Real Edge*, and *Unlimited* frequently mentioned beer, mixed drink, and liquor or spirits. The unisex



**Fig. 1.** Cover of *CML* (June 2001) features young adults smoking Camel cigarettes and drinking alcohol in a social setting.



**Fig. 2.** Alcohol is often portrayed in tobacco advertisements in tobacco industry's lifestyle magazines. Newport's cigarette advertisement (upper left) in *P.S.* (Spring 2005) shows young adults smoking cigarettes and drinking alcohol in a bar setting, typically engaging in sociable behavior. *CML* (Spring 2000) magazine "catalog" feature (upper right) is difficult to distinguish from a Camel cigarette advertisement, and depicts both cigarette and alcohol in a party setting, and includes a warning label on the facing page. Koool's advertisement (bottom) in *Flair* (Holiday 1999 and Spring 2000) and *Real Edge* (January 2000, September and November 1999) features the image of a man's hand holding a pack of Koool cigarettes and a lit cigarette. In the foreground, with group of young adults enjoying alcohol in a bar setting.

**Table 4**  
Type of alcohol in lifestyle magazine content with alcohol references.

	Unlimited (PM, men's magazine)	All Woman (PM, women's magazine)	CML (RJR, men's magazine)	P.S. (Lorillard, unisex magazine)	Real Edge (B&W, men's magazine)	Flair (B&W, women's magazine)	Total
Number of issues	25	3	13	16	10	6	73
<b>Magazine cover</b>							
Beer	0	0	0	1 (12.5%)	0	0	1 (7.1%)
Wine	0	0	0	1 (12.5%)	0	0	1 (7.1%)
Mixed drink	0	0	4 (80.0%)	6 (75.0%)	0	1 (100%)	11 (78.6%)
Type unknown	0	0	1 (20.0%)	0	0	0	1 (7.1%)
<b>Article</b>							
Beer	203 (65.7%)	3 (23.1%)	22 (32.4%)	30 (42.3%)	42 (52.5%)	10 (25.0%)	310 (53.4%)
Wine	36 (11.7%)	6 (46.2%)	26 (38.2%)	23 (32.4%)	15 (18.8%)	18 (45.0%)	124 (21.3%)
Mixed drink	74 (23.9%)	6 (46.2%)	40 (58.9%)	47 (66.2%)	17 (21.3%)	18 (45.0%)	202 (34.8%)
Liquor/spirits	81 (26.2%)	1 (7.7%)	28 (41.2%)	30 (42.3%)	23 (28.8%)	10 (25.0%)	173 (29.8%)
Type unknown	11 (3.6%)	0	0	2 (2.8%)	4 (5.0%)	0	17 (2.9%)
<b>Tobacco ads</b>							
Beer	2 (28.6%)	0	18 (24.0%)	3 (17.6%)	3 (20.0%)	2 (40.0%)	28 (23.5%)
Wine	1 (14.3%)	0	18 (24.0%)	4 (23.5%)	4 (26.7%)	0	27 (22.7%)
Mixed drink	3 (42.9%)	0	49 (65.3%)	10 (58.8%)	5 (33.3%)	2 (40.0%)	69 (58.0%)
Liquor/spirits	3 (42.9%)	0	17 (22.7%)	3 (17.6%)	6 (40.0%)	1 (20.0%)	30 (25.2%)
Type unknown	0	0	0	2 (11.8%)	1 (6.7%)	1 (20.0%)	4 (3.4%)
<b>Non-tobacco ads</b>							
Beer	13 (30.0%)	0	0	0	0	0	13 (22.8%)
Wine	5 (11.4%)	0	0	0	2 (25.0%)	0	7 (12.3%)
Mixed drink	3 (6.8%)	0	0	1 (100%)	2 (25.0%)	0	6 (10.5%)
Liquor/spirits	24 (54.5%)	0	0	0	6 (75.0%)	4 (100%)	34 (59.6%)

Note. Multiple alcohol references in each article or tobacco ad or non-tobacco ad, not add up to 100%.

magazine *P.S.* most frequently mentioned mixed drinks. The female-oriented magazines *All Woman* and *Flair* most often portrayed mixed drinks and wine.

#### 4. Discussion

Tobacco industry lifestyle magazines frequently featured alcohol throughout the magazines to promote tobacco brands: on magazine covers, in articles, and in tobacco ads. While the pairing of tobacco and alcohol in advertising has been observed in mainstream magazines, (Belstock et al., 2008) this study adds to the literature by examining a unique new medium over which the tobacco companies had much more control. In lifestyle magazines that they produced, tobacco companies could influence the entire content of the magazine, the frequency and intensity of the tobacco and alcohol pairing. The consistency of the tobacco–alcohol linkages in magazines from four major tobacco companies underlines the importance of this marketing tactic to tobacco companies.

The frequency of alcohol references and the types of alcohol differed significantly depending on the gender orientation of the magazine. The choice of alcoholic beverage portrayed in these magazines may both result from and facilitate targeted marketing by gender. As noted in a UK study, beer is the most popular alcoholic drink among males, and wine is most popular among females (Institute of Alcohol Studies, 2013). A US study concluded that males prefer beer and liquor, whereas females prefer wine and cocktails (Mosley, 2012). Tobacco companies have known the alcohol preferences (Jiang & Ling, 2011) and carefully selected the types and brands of alcohol in their marketing activities to reinforce and capitalize upon alcohol use among young adults in order to build cigarette brand identity and increase cigarette sales (Jiang & Ling, 2011). The same marketing strategy is manifest in these tobacco industry lifestyle magazines, with the added observation of tailoring by gender: male-oriented magazines contained the most alcohol references (mainly beer, mixed drink, and liquor or spirits), and female-oriented magazines had fewer alcohol references, and mixed drinks and wine were frequently featured. Future tobacco control interventions must address substance co-use rather than focusing on smoking only, and should tailor the intervention messaging by gender.

Hall (1993) emphasizes four stages of encoding and decoding of messages in media: Production, circulation, consumption, and reproduction. This paper provides further support that the tobacco industry controlled the production and circulation of messages normalizing tobacco and alcohol co-use in lifestyle magazines. We cannot know how the young adult audiences at that time interpreted the tobacco and alcohol pairing, and how this knowledge was reproduced. However, tobacco marketers and public health policymakers created different frames of tobacco use in the United States during the late 20th Century (McDaniel, Smith, & Malone, 2006). Tobacco and alcohol pairing in magazines is but one way the tobacco industry can achieve what social psychologists call frame resonance (Benford & Snow, 2000) to strengthen the consistency, credibility, and salience of a “tobacco use frame” for young adults during a time of conflicting messaging between the tobacco industry and public health policymakers. Furthermore, if we apply Hall's (1993) encoding/decoding concepts above to the ways in which the lifestyle magazines intimately linked tobacco use with alcohol, we should safely infer the consumption and reproduction results for young adults were clear: when you are drinking, it is normal to smoke a cigarette. Consistent rates of “social smoking” demonstrate that the encoded messages of tobacco and alcohol co-use like those communicated in the lifestyle magazines have not yet abated. We encourage public health researchers to contextualize their current cessation strategies within the historical context of these lifestyle magazines.

Similar to the theoretical approach of Hall (1993), the images and texts of advertising create a cumulative effect on consumers (Anderson & Dunn, 2006; Pollay, 1986), which can be “a reminder and reinforcer [to the smoker], while to non-smokers it is a temptation and a teacher of tolerance” for smoking and drinking (Pollay, 2000). The lifestyle advertising exemplified by the tobacco industry's magazines frequently linked tobacco and alcohol, and so might have promoted paired tobacco and alcohol use (though most of these lifestyle magazines are not in circulation now). The frequent depictions of smoking and drinking in tobacco industry lifestyle magazines might have created the impression that smoking and drinking are socially acceptable and that co-use of tobacco and alcohol fosters social connections. The co-use imagery might have encouraged young adults to socially and psychologically connect themselves with this practice, reinforced the social norms about the pairing of smoking and drinking, and generated

favorable perceptions of substance co-use. Further research is needed to demonstrate how advertising that portrays both tobacco and alcohol influences substance co-use patterns. Anti-tobacco interventions should address the social norms about smoking and drinking and create a social milieu that smoking is not acceptable in any social setting, such as those campaigns which have successfully denormalized smoking and changed the social norms around tobacco (Celebucki & Turner-Bowker, 2001; Robert Wood Johnson Foundation, 2011; Zhang, Cowling, & Tang, 2010). A previous bar-based campaign that denormalized tobacco use significantly reduced binge drinking among bar patrons, even though the campaign messaging did not overtly address alcohol use (Ling et al., 2014). Interventions that decrease social acceptability and desirability of tobacco use (such as those successfully deployed in anti-tobacco campaigns (Gilpin et al., 2003; Zhang et al., 2010)) might be powerful to address both smoking and drinking.

Today, some of the tobacco industry's lifestyle magazines (e.g., *P.S.*) are still distributed, and while the most recent issues of *P.S.* were not formally included in this analysis, an informal review finds that alcohol is still featured prominently in these recent issues, suggesting that advertising reinforcing co-use of tobacco and alcohol has continued. In addition to the lifestyle magazines, there is evidence that tobacco companies likely have transferred the same marketing tactics into online media channels, such as the cigarette brand websites which often feature lifestyle activities and contain imagery and content about alcohol (such as stories about popular bars) in features that are very similar to stories found in tobacco industry's lifestyle magazines (Lorillard Tobacco Company, 2013; Philip Morris). The images and descriptions of alcohol appearing in cigarette brand websites highlight bars, restaurants, or music venues, and bottles or glasses typical of alcoholic beverages continue to be featured in photos of social settings (R. J. Reynolds, 2014a,b). The internet is widely used among young people, making online a more direct and cost-effective communication channel to reach young adults compared to the costs associated in producing, publishing, and distributing the lifestyle magazines (Cortese et al., 2009). The marketing through online media channels is also more difficult than print media to monitor and regulate. The imagery and text contents featuring both tobacco and alcohol in the online media channels may have an ongoing impact on the social norms around substance co-use and the practice of co-use among young adults.

In addition to tobacco industry's lifestyle magazines and the tobacco brand websites, similar marketing tactics can be carried out in mainstream magazines (Belstock et al., 2008). Tobacco industry efforts to link tobacco and alcohol in their lifestyle magazines, mainstream magazines, and tobacco brand websites reflect their desire to create a "chorus of voices" that influence social norms regarding smoking and ancillary behaviors (Landman et al., 2008) like drinking alcohol in highly sociable settings. Although smoking and drinking have been widely regarded as a "natural" pairing (Nichter et al., 2010), the tobacco industry has never showed qualms in exploiting and reinforcing this pairing to sell cigarettes.

This study is limited in that the magazines analyzed represented only a subset of the tobacco industry's lifestyle magazines. However, to our knowledge, the data we analyzed is the most complete collection of this media which featured major cigarette brands (e.g., Marlboro, Camel, Lucky Strike, Newport, and Virginia Slims) popular among young adults. The other limitation of the study is that most of these magazines are no longer produced today. However, these historical texts provide a unique perspective into how, through the creation of lifestyle media, tobacco companies reinforced the links between tobacco and alcohol use. The prominence of tobacco and alcohol associations in a medium arguably wholly controlled by tobacco companies underscores the importance of this marketing tactic to tobacco industry. Interventions must break the link between tobacco and alcohol, and change the social acceptability of smoking in any social settings. Similar to tobacco marketing tactics, tobacco control programs should tailor

intervention messaging that addresses both tobacco and alcohol use by gender.

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### Contributors

NJ and PML conceptualized and designed the study. DKC helped in study conceptualization. MJL contributed to data collection. DKC, MJL and PML developed the coding instrument, led and supervised data collection. NJ, DKC and PML participated in data analysis and interpretation. NJ wrote the first complete draft of this article. All authors contributed substantially to the manuscript revision, and have approved the final manuscript.

### Conflict of interest

None declared.

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